Remarks of Richard Berner, Director, Office of Financial Research,
U.S. Department of the Treasury
at the Money Marketeers of New York University
"Financial Stability: Progress and Challenges"
October 16, 2014, New York, N.Y.

It is an honor to address the Money Marketeers this evening. I thank President Barry Cohen and the other officers for inviting me. I learned most of what I know about financial markets by being involved in them for three decades, much of that time with some of the people in this room.

During that time, I valued membership in the Money Marketeers for networking and for the opportunity to hear from policymakers. I am delighted to come back here to network with many friends and former colleagues, and to continue your long tradition of fostering informed public discussion.

Significant Improvement

My topic tonight is "Financial Stability: Progress and Challenges." Financial stability awareness, and financial stability analysis and monitoring predate the financial crisis that began in 2007. But the financial crisis fundamentally changed the conversation. It exposed critical gaps in our analysis and understanding of the financial system, in the data and metrics used to measure and monitor financial activities, and in the policy tools available to mitigate potential threats to financial stability. These gaps in analysis, data, and policy tools contributed to the crisis and hampered official efforts to contain it.

My key message tonight has two parts. The first is that we have made consequential progress since the crisis. We are better at spotting financial vulnerabilities; for example, we know they can arise through increased leverage, and through excessive liquidity and maturity transformation, interconnectedness, and complexity.

We have also begun to improve the quality and scope of financial data. For example, new data on private funds and derivatives are enhancing our ability to assess threats.

In addition, we have developed new policy tools aimed at making the financial system stronger and more transparent. Financial reform has dramatically strengthened bank balance sheets through new capital and liquidity requirements that are buffers against loss and hurdles for risk-taking. New regimes for resolving troubled, complex financial institutions have improved information available to supervisors and probably forced some companies to alter business models. Stress testing has become a more comprehensive risk-management tool for market participants, thanks in large part to supervisory stress-testing programs tied to assessments of capital and liquidity adequacy.[1] And reforms to derivatives markets have increased transparency and oversight.

[1] Federal Reserve Governor Tarullo provides a good summary of the state of the art and possible enhancements to current stress test practices in "Stress Testing after Five Years," at the Federal Reserve Third Annual Stress Test Modeling Symposium, Boston, June 25, 2014.

Moreover, the crisis spurred important institutional changes. In the United States, the Dodd-Frank Act created the Financial Stability Oversight Council and the Office of Financial Research to assess and monitor threats to financial stability. The Council has strengthened interagency communication and cooperation. It has served as a forum for evaluating those threats and acting on policies to address them, including restoring market discipline. The OFR is working with the Council to look across the financial system to monitor threats, to help fill gaps in analysis and data, and to develop and promote standards to improve data quality.

In short, we've been on the job. We think that's an impressive set of improvements that have made — or promise to make — the financial system more resilient.

The second part of my message is that we have more work to do. And we will stay on the job to address additional challenges. Among them: First, we see vulnerabilities in the financial system. Second, and despite our progress, gaps in analysis, data, and policy tools persist. Third, regulatory arbitrage and financial innovation are promoting the migration of financial activity toward areas where I see the biggest potential threats.

In the remainder of my time tonight, I want to share details of those challenges with you, and touch on how we at the OFR are addressing them.

Sources of vulnerability

I'll start with vulnerabilities, grouped into three themes:

1. Persistently low interest rates and low market volatility have prompted increased risk taking in many asset classes and venues.
2. The recent decline in market liquidity, if it continues, may amplify and transmit stress across the financial system.
3. Vulnerabilities in short-term, wholesale funding markets make them prone to fire sales and runs.

Each of these is no doubt familiar and any one of them alone might not cause financial stability concerns. Taken together, however, they deserve close monitoring.

For example, investors recently taking on interest rate, credit, and liquidity risk may have used leverage or maturity transformation to boost returns. A rate or volatility shock could reveal those vulnerabilities. And procyclicality in wholesale funding markets coupled with low market liquidity could amplify and transmit stress across the financial system in both advanced and emerging markets.

Let me discuss these three themes in turn, and then outline how we monitor them at the OFR.

Increased risk taking

Until recently, a relatively benign global economic, financial, and policy environment has fostered a growing appetite for risk in financial markets. Several factors, including accommodative global monetary policy (reflecting disappointing growth and disinflation), have boosted asset values and eased financial conditions. Three obvious by-products of this regime

have been persistently low volatility, compressed risk premiums, and the ample funding liquidity. Investors have been rewarded for taking on credit, duration, and liquidity positions.

Concurrently, signs of excess in credit, duration, and volatility have become more apparent. Credit underwriting standards and covenants have slipped and leverage has risen. Investors increasingly took those risks in investment vehicles that are exposed to redemption risk. Portfolio duration is higher than a year ago. Valuations appear stretched in a few asset classes relative to fundamentally based fair value estimates.

Recent price action suggests that those factors — the low level of implied volatility combined with risk-taking and extended valuations — set the stage for a reversal. Since mid-September, the catalysts of global growth fears and a reassessment of risk exposures have pressured risky assets. Volatility has spiked across a number of asset markets, and option skews and other tail risk measures have increased.

The low volatility and compressed risk spreads prevailing until recently are all traditionally viewed as signs of low financial market risks. However, I believe that eventually just the opposite is true. These developments often signal rising market risks, because they give investors and risk managers incentives and wherewithal to take on leverage or add to risk positions.

You might say that anyone who has spent a week on a trading desk could have told you that. But recognition of that dynamic in either academic or policy analysis is only starting to appear. Academic research shows that low volatility promotes increased leverage and future risk.[2]

Declines in Market Liquidity

The second vulnerability results from recent changes in market liquidity — or the ability to transact in size without having a big impact on price. Sharp decreases in liquidity are often harbingers of financial stress, and illiquid market conditions can magnify the effects of shocks on the financial system. Several factors likely are behind the recent decline in market liquidity, possibly including fragmentation and structural changes in various market segments. If so, future shocks may result in abrupt, large, and procyclical price swings.

Vulnerabilities in short-term funding markets

The third vulnerability is the threat of fire sales and runs resulting from weaknesses in short-term, wholesale funding markets. Those threats are more likely when such funding creates maturity transformation and leverage.

Short-term, wholesale funding markets — repo markets in particular — are critical to market functioning. The repo market efficiently creates market liquidity and facilitates price discovery for U.S. capital markets. It serves as a critical source of funding for large, complex broker-dealers. Overall, the U.S. repo market provides more than $3 trillion in funding every day.

As you know, the U.S. repo market two major parts:

---

2 Jon Danielsson, Hyun Song Shin and Jean-Pierre Zigrand, "Procyclical Leverage and Endogenous Risk," October 2012.

1. The triparty repo market, including transactions centrally settled by two large clearing banks, as well as general collateral financing (GCF), interdealer transactions that are centrally cleared; and
2. The bilateral, or DvP, market, where repo transactions are conducted privately between two firms.

Recent regulatory efforts have reduced intraday credit risk and improved risk management by participants in the triparty repo market. However, vulnerabilities in repo markets persist. A default of a large triparty repo borrower could trigger fire sales of repo collateral, creating a threat to financial stability. In bilateral segments, a market shock may create concerns about risky counterparties, boost collateral haircuts, and create similarly destabilizing market dynamics.

We monitor these risks partly by gathering market intelligence, for example, by talking with people like you. We also monitor risk through the framework in our Financial Stability Monitor, in which we track macroeconomic, market, credit, funding and liquidity, and contagion risks. This risk-based approach aligns with the financial system's basic functions, and it enables us to look across the financial system rather than focusing on institutions or market segments.

Because funding and liquidity risks are important to track, we are developing the data and tools to do that monitoring. Although tracking market liquidity is a challenge across diverse asset markets, we are developing a set of measures to monitor liquidity conditions across markets using several characteristics: depth, breadth, resiliency, quality, and immediacy. We intend to use metrics to inform policymakers on a routine basis, and are keen to get your input — not just on the monitoring metrics, but also on policy or market-oriented solutions.

The challenging and pressing need for high-quality data

Even if we had ample, high-quality data, all three of these potential financial stability threats would still be difficult to assess and monitor. Our work is harder because gaps in both the scope and quality of financial data persist.

I cannot overemphasize the importance of quality in making financial data usable and transparent. When Lehman Brothers failed six years ago, its counterparties could not assess their total exposures to Lehman. Financial regulators were also in the dark. Why? Because there were no industry-wide standards for identifying and linking financial data representing entities or instruments. Standards are needed to produce high-quality data. And high-quality data are essential for effective risk management in financial companies, especially to assess their connections and exposures to other firms.

Nor can we take the scope of our financial data for granted. We need solid, reliable, granular, timely, and comprehensive data for analysis and monitoring. We have made progress, but there are still significant gaps. The OFR's job is to fill those gaps by prioritizing and meeting data needs.

We have several initiatives aimed at data improvement. I'll briefly describe two focused on data quality and a third aimed at filling a significant gap in data related to short-term wholesale funding.

Work with CFTC on data quality in swap data repositories
Financial reform sought to improve transparency in derivatives markets by requiring that data related to transactions in swaps be reported to swap data repositories. Swap data are critical to understand exposures and connections across the financial system, and the repositories are designed to be high-quality, low-cost data collection points.

The OFR and the Commodity Futures Trading Commission, or CFTC, both want to promote the use of data standards in swap data reporting to assure data quality and utility. Together, we announced in March a memorandum of understanding for a joint project to enhance the quality, types, and formats of data collected from registered swap data repositories. Under a second agreement, members of the OFR staff are working on a detail at the CFTC. Together, we are aggressively moving forward.

LEI Update
The second quality initiative involves a data standard familiar to many of you, the Legal Entity Identifier, or LEI. The LEI, which is like a bar code for precisely identifying parties to financial transactions, is an essential element in the standards toolkit. The OFR has led this initiative from the start, and the LEI initiative has gone from conception to full-fledged operational system in just a few years.

To date, the LEI has been required only for some aspects of financial reporting in the United States and abroad. These requirements, together with voluntary implementation, have driven LEI adoption across the globe: 300,000 LEIs issued to entities in 180 countries. But greater — indeed, universal — adoption is necessary to bring efficiencies to reporting entities and useful information to the Council and other policymakers.

The case for ubiquitous adoption of this data standard is strong.

Had the LEI system been in place in 2008, the industry, regulators, and policymakers would have been better able to trace Lehman's exposures and connections across the financial system. The LEI system also generates efficiencies for financial companies in internal reporting, risk management, and in collecting, cleaning, and aggregating data. I expect it will reduce companies' regulatory reporting burdens by reducing — and eventually eliminating — overlap and duplication.

The financial services industry has strongly supported the LEI initiative. In fact, major trade groups have called for government regulators to mandate its use — a rare example of industry asking for more regulation.

The global LEI system is up, running, and growing. Like any network, the LEI system has benefits that will grow as the system grows. But ubiquity is needed to realize the full benefits of the LEI. Mandating use of the LEI for regulatory reporting is needed to overcome obstacles to

adoption. That is why the OFR and the Council have been calling for regulators to require use of the LEI in regulatory reporting.

Filling gaps in repo data
I mentioned that we need to fill the most important data gaps. Last week at a meeting of the Financial Stability Oversight Council, I announced an important initiative of the OFR in partnership with the Federal Reserve to fill gaps in data measuring repo activity.

Information and data on the triparty and GCF repo markets are published regularly, but information about bilateral repos is scant. Our joint project is designed to fill that gap.

The project marks the first time the OFR is going directly to industry to gather financial market information. Participation is voluntary, and participating companies will be asked for input on what data should be gathered. Preliminary outreach to industry participants has already begun and so far they have been very receptive to participating in the project. We expect to begin gathering data early next year. Aggregated data from the survey will be published to provide greater transparency into the bilateral repo market for participants and policymakers.

Financial migration and shadow banking
The final challenge is related to the fact that financial activity is increasingly migrating away from the traditional banking system. This migration may be the product of financial innovation, which can create new products to meet client needs, but may also be driven by regulatory arbitrage —firms' desire to avoid regulations. Either way, I worry that activity is moving toward areas where I see the biggest potential threats.

Let me amplify. The regulatory focus on banks does not extend to market-based finance, or shadow banking, which involves activities through nonbanks that offer credit and the creation of money-like liabilities without the official support that banks enjoy. Examples include stand-alone broker-dealers, mortgage real estate investment trusts (or REITS), and unregistered investment funds.

These activities can be highly beneficial, and migration of financial activity to them may diffuse risk. But the crisis illustrated how supposedly less-concentrated risk can be harder to track, assess, and mitigate. And it showed how the often opaque and complex chains of activity in shadow banking can transmit and amplify the effects of financial shocks.

Leveraged lending is a good example. It has increasingly shifted from banks to markets and nonbanks. At the same time, weakening underwriting standards and record-tight credit spreads are warning signs of future risks in leveraged lending. Investors are reaching for yield in leveraged loans through collateralized loan obligations (CLOs), which are investment vehicles that invest in leveraged loans, loan funds, hedge funds, and high-yield bond funds.

CLO issuance has set new records this year. But U.S. banks' share of the leveraged loan market has dwindled to an all-time low. Institutional investors and finance companies have picked up the slack, accounting for over 90 percent of the investor base.

The discussion of shadow banking and market-based finance brings me to another point. It is now widely accepted that a macroprudential perspective — one focused on the stability of the entire financial system and not just on individual entities — is essential to assess threats to financial stability. Similarly, our analytical framework for assessing threats to financial stability must look *across* the system. Metrics to measure interconnectedness are likewise essential. And a "macroprudential toolkit" is needed to mitigate risks and strengthen the system.[3]

We've made progress here too. For example, the Financial Stability Board (or FSB) released a framework on Monday for setting haircut floors for certain securities financing transactions. The framework is a big step forward for many jurisdictions. By raising the cost of short-term funding, haircut floors will encourage borrowers to extend the maturity of their liabilities and help reduce the procyclicality that short-term financing often promotes under stress.

To be sure, the details matter. The FSB's haircut floors are below current U.S. triparty repo market levels, and I presume below those in the bilateral repo market. If implemented, they would likely discourage declines in haircuts like the ones before the crisis, but they would not be binding today. Circumvention of the floors and arbitrage can be limited by applying the floors to cash-collateralized securities lending and to collateral transformation trades. But clearly we need more work to evaluate this promising market-based policy tool.[4]

In closing, I want to leave you with two key thoughts.

First, although we've made substantial progress in our analysis, data, and tools to mitigate risks — resulting in a more resilient financial system — we still have more work to do.

Second, in order to do that work, we must engage with market participants and the financial services industry. We welcome your engagement.

Thank you again for inviting me here tonight. I would be happy to respond to your questions.

*****

[3] Kashyap A., R. Berner, and C. Goodhart., 2011, "The Macroprudential Toolkit.," IMF Economic Review, 59, 145-161. Hanson, Samuel G., Anil K. Kashyap, and Jeremy C. Stein, 2011, "A Macroprudential Approach to Financial Regulation," Journal of Economic Perspectives, 25(1), Winter, 3-28. http://www.aeaweb.org/articles.php?doi=10.1257/jep.25.1.3

[4] There are numerous proposals to use minimum haircuts to reduce reliance on short-term funding. See, for example, Committee on the Global Financial System, "The role of margin requirements and haircuts in procyclicality," CGFS Papers, No 36, March 2010; Samuel G. Hanson, Anil K. Kashyap, and Jeremy C. Stein, "A Macroprudential Approach to Financial Regulation," *Journal of Economic Perspectives* 25, no. 1 (Winter 2011), 3–28; Andrew G. Haldane, "Haircuts," Remarks, August 1, 2011; Financial Stability Board, "Strengthening Oversight and Regulation of Shadow Banking: A Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos," August 29, 2013; Daniel K. Tarullo, "Shadow Banking and Systemic Risk Regulation," Remarks at the Americans for Financial Reform and Economic Policy Institute Conference, Washington, D.C., November 22, 2013.